REMARKS

Claims 2 through 13 are pending in the subject application. Claims 2-4, 6, and 12 stand rejected under 35 U.S.C. 102(b). Further, claims 5, 7-11, and 13 stand rejected under 35 U.S.C. 103(a). Claims 2 and 4 have been amended.

The Applicant appreciates the Examiner's thorough examination of the subject application and, moreover, appreciates Examiner's granting a telephone interview on April 16, 2002. The Applicant respectfully requests reconsideration of the subject application based on the above amendments and the following remarks.

35 U.S.C. § 102(b) REJECTION

The Examiner has again rejected claims 2-4, 6, and 12 under 35 USC 102(b) as being unpatentable over U.S. Patent No. 5,962,941 to Serdar, et al. ("Serdar" or the "Serdar Reference"). The Applicant respectfully traverses these rejections for reasons detailed below.

In a telephone interview, the Examiner provided that a limitation in claim 2 highlighting the fact that the web section of the present invention is attached to the outer rim section makes the invention as claimed allowable over Serdar. The Applicant respectfully asserts that the feature added to claim 2 by amendment, i.e., that the web section is integrally formed to the central core and the outer rim section is inherent to the invention as shown in FIGs. 2-4 and as described throughout the specification. Accordingly, the Applicant asserts that the amendment to claim 2 is made for reasons unrelated to the patentability of the present invention and, furthermore, made without surrendering any of the equivalents to which the claim element is entitled.

Furthermore, with respect to claim 4, the web section of the metal hub has been amended to read "circumferentially continuous" to distinguish between radial

continuity. The Applicant maintains that those of ordinary skill in the art would know that a hub is radially continuously by definition. Thus, circumferential continuity was implicit in the claim. Accordingly, the Applicant asserts that the amendment to claim 4 is made for reasons unrelated to the patentability of the present invention and, furthermore, made without surrendering any of the equivalents to which the claim element is entitled.

The patent to Serdar discloses an energy storage apparatus 500 including a hub 580 rotatably positioned about an axial shaft. The hub 580 has at least one spoke plane 582 projecting radially from the hub 580 and at least one spoke 584 per spoke plane 582. See, e.g., Serdar, column 5, lines 46-64. Moreover, the end of each spoke 584 is slidingly engaged to the rotor 510 at the rotor to hub interface 590. See, Id., col. 6, lines 16-27; FIGs. 7 and 8.

The Examiner asserts that "[t]he hub has . . . an outer rim section 570 in tight interference fit with a composite fiber 556 . . . and a web section 584." However, the Sendar reference does not teach a hub 580 that includes an outer rim section 570 that is integrally attached to the web section 584. Instead, Sendar teaches a hub comprising a plurality of spoke planes 582 that is coplanar with at least one radially extending spoke 584. See, e.g., col. 5, lines 46-52. Further, the "outer rim section 570" referred to by the Examiner is an attachment receptacle that is located at the rotor to hub interface 590 for attaching the hub 580 to the rim 556 of the rotor 510. See, e.g., col. 6, lines 17-34. Thus, the equivalent device element of the outer rim section 90 of the present invention is the rim 556 of the rotor 510 and not the attachment receptacle 570. In either case, the outer rim 90 of the present invention is integral to the hub 40; whereas the rim 556 of the rotor 510 is separate from the hub 580 taught by Sendar.

With respect to claim 4, the Examiner asserts that, individually, the spokes 584 are continuous in a radial direction from the hub to the outer rim. However, as provided above, the spokes do not provide a circumferentially continuous web section as taught and claimed by the present invention. The present invention, however,

teaches a continuous web of approximately uniform thickness extending radially from the central core. See, e.g., Application, page 9, lines 29-30. Moreover, the specification states that "the plurality of spokes associated with Flanagan et al. of the prior art are not continuous." See, e.g., Id., page 10, lines 1-3 (Emphasis added). Accordingly, the plurality of spokes of Sendar is not continuous. Therefore, the Applicant believes that claim 4 is in a condition for allowance.

With respect to claim 6, the Examiner asserts that the outer rim section of Sendar engages the spoke and is flexible enough to deform radially with the composite fiber rim. The Applicant, however, respectfully maintains that the Sendar reference does not teach an outer rim section that deforms commensurate with deformation of the composite fiber rim. On the contrary, the Sendar reference teaches a plurality of spokes 584 that slidingly engage the inner surfaces of sockets 592 of an attachment receptacle 570. Deformation of the spokes is totally unrelated to deformation of the composite fiber rim. Moreover, in no passage does the Sendar reference mention a hub that deforms commensurate with the deformation of the composite fiber rim. Accordingly, the Applicant believes that claim 6 is in a condition for allowance.

With respect to claim 12, the Examiner asserts that the Sendar reference discloses at least one balancing rail for balancing the flywheel. However, the balancing bars 596 cited by the Examiner are not the balancing rails 100a of the present invention. The Sendar reference teaches a plurality of balancing bars 596 that is "designed to match the centrifugal loading imparted on the rotor 510 by the adjacent receptacle 570." See, e.g., col. 6, lines 35-39. The Applicant respectfully maintains that the purpose of the Sendar balancing bars is to balance the rotor and not the hub. In contrast, the purpose of the balancing rail 101a of the invention as claimed is to counter the weight of the axial stop 100b to better balance the hub 40. See, e.g., Application page 11, lines 24-33. Accordingly, the Applicant believes that claim 12 is in a condition for allowance.

Therefore, it is respectfully submitted that, for the foregoing reasons, independent claim 2 and all dependent claims thereof are not anticipated by the

Serdar reference and, further, satisfy the requirements of 35 U.S.C. 100, et seq. As such, the Applicant believes that claims 2-4, 6, and 12 are allowable. Moreover, it is respectfully submitted that the subject application is in a condition for allowance. Early and favorable action is requested.

35 U.S.C. § 103(a) REJECTION

The Examiner has again rejected claim 5 and claims 7-11 under 35 USC 103(a) as being unpatentable over Serdar. Furthermore, The Examiner rejected claim 13 under 35 USC 103(a) as being unpatentable over Serdar in light of U.S. Patent No. 5,634,381 to Thoolen. The Applicant respectfully traverses these rejections for the same reasons presented above in our discussion of the grounds for the §102(b) rejection. Indeed, the Serdar reference neither anticipates nor makes obvious the invention as claimed. Furthermore, with respect to claim 13, the Thoolen reference does not make up for the deficiencies of the Serdar reference as the Thoolen reference dose not disclose a stiff metallic hub that, among others, produces a critical velocity that exceeds the design operating speed of the flywheel assembly.

It is respectfully submitted that, for the foregoing reasons, claims 5, 7-11, and 13 are not made obvious by the Serdar reference and/or the Thoolen reference and, further, satisfy the requirements of 35 U.S.C. 100, et seq. As such, the Applicant believes that claims 5, 7-11, and 13 are allowable. Moreover, it is respectfully submitted that the subject application is in a condition for allowance. Early and favorable action is requested.

The Applicant believes that no additional fee is required for consideration of the within Response. However, if for any reason the fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. **04-1105**.

Respectfully submitted,

Date: June 13, 2002

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ANNEX TO AMENDMENT PURSUANT TO 37 CFR 1.114
CONTAING MARKED-UP VERSIONS OF AMENDED CLAIMS

Amend the following claims to read:

2. (Twice Amended) A stiff, metallic hub for an energy storage device, having a flywheel assembly, wherein the hub produces a critical velocity that exceeds the design operating speed of the flywheel assembly, the stiff, metallic hub comprising:

a central core in tight interference fit with a rotary shaft of the flywheel assembly;

an outer rim section in tight interference fit with a high-strength, low-density composite fiber rim of the flywheel assembly; and

a web section,

wherein the web section is integrally formed to the central core and the outer rim section.

4. (Amended) A stiff, metallic hub as recited in claim 2, wherein the web section is circumferentially continuous.